

AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of claims:

Claim 1 (Currently Amended): A printer firmware installation method for installing firmware from an upper-level apparatus to a printer through a network comprising the steps of:

receiving each block of said firmware consisting of a plurality of blocks;

storing said each received block to a ~~storage means~~ memory;

judging a guarantee range of the installed blocks using the data stored in said ~~storage means~~ memory when resuming said installation after an interruption of said installation; and

informing said judged guarantee range to said upper-level apparatus to resume said installation.

Claim 2 (Original): The printer firmware installation method according to claim 1, further comprising the step of:

resuming to install said firmware to said printer from the succeeding transfer block of the guarantee range in accordance with said guarantee range.

Claim 3 (Currently Amended): The printer firmware installation method according to claim 1, wherein said receiving step comprises a step of receiving firmware management information and each block of the firmware entity,

Amendment under 37 C.F.R. § 1.111
Serial No. 09/987,016
Attorney Docket No. 011417

and wherein said judging step comprises a step of judging said guarantee range of said installed blocks using said received management information and data stored in said ~~storage~~ means memory.

Claim 4 (Currently Amended): The printer firmware installation method according to claim 3, wherein said receiving step comprises:

a first reception step of receiving said firmware management information; and

a second reception step of receiving said each block of the firmware entity,

and wherein said judging step comprises a step of judging said guarantee range of said installed blocks using said received management information and data stored in said ~~storage~~ means memory.

Claim 5 (Currently Amended): The printer firmware installation method according to claim 3, wherein said receiving step comprises a step of receiving blocks each consisting of firmware management information on said each firmware block and the firmware entity,

and wherein said judging step comprises a step of judging said guarantee range of said installed blocks using management information extracted from said each received block and data stored in said ~~storage means~~ memory.

Amendment under 37 C.F.R. § 1.111
Serial No. 09/987,016
Attorney Docket No. 011417

Claim 6 (Original): The printer firmware installation method according to claim 1, further comprising the steps of:

informing an installation interruption to said upper-level apparatus from said printer; and
informing an installation resumption to said upper-level apparatus from said printer.

Claim 7 (Currently Amended): A printer for printing data to print medium based on control according to a firmware comprising:

~~storage means for storing~~ memory that stores said firmware;

~~communication means for receiving~~ communication unit that receives each block of said firmware consisting of a plurality of blocks from a upper-level apparatus; and

~~processing means for processing~~ processor that processes said received block, storing into said ~~storage means~~ memory,

wherein, said ~~processing means~~ processor judges a guarantee range of the installed blocks using a data stored in said ~~storage means~~ memory when resuming said installation after an interruption of said installation, and informs said upper-level apparatus of said guarantee range to resume said installation.

Claim 8 (Currently Amended): The printer according to claim 7,

wherein said communication ~~means~~ unit receives firmware management information and each block of the firmware entity, and

said ~~processing means~~ processor judges a guarantee range of said installed blocks using said received firmware management information and data stored in said ~~storage means~~ memory.

Claim 9 (Currently Amended): The printer according to claim 8,

wherein said ~~processing means~~ processor stores said received firmware management information into said ~~storage means~~ memory, receives each block of the firmware entity, and judges said guarantee range of said installed blocks using said received firmware management information and data stored in said ~~storage means~~ memory.

Claim 10 (Currently Amended): The printer according to claim 8,

wherein said ~~processing means~~ processor receives blocks each comprising of firmware management information on said each firmware block and the firmware entity; extracts said firmware management information to store into said ~~storage means~~ memory; and judges said guarantee range of said installed blocks using said firmware management information extracted from said each received block and data stored in said ~~storage means~~ memory.

Claim 11 (Currently Amended): The printer according to claim 7,

wherein said ~~processing means~~ processor informs said upper-level apparatus of an installation interruption signal; and informs said upper-level apparatus of an installation resumption signal.

Claim 12 (Currently Amended): The printer according to claim 11,
wherein said ~~processing means~~ processor starts to print said print data and interrupts said installation when receiving a print data, and informs said upper-level apparatus of said interruption signal.

Claim 13 (Currently Amended): The printer according to claim 11,
wherein said ~~processing means~~ processor performs a processing corresponding to a printer operation and interrupts said installation when detecting said printer operation; and informs said upper-level apparatus of said interruption signal.

Claim 14 (Currently Amended): A printer system comprising:
a printer for printing according to a print order received through a network; and
upper-level apparatus for installing firmware to said printer through said network,
wherein said printer comprises:
~~storage means for storing~~ memory that stores said received firmware consisting of a plurality of blocks;
~~communication means for receiving~~ communication unit that receives each block of said firmware consisting of a plurality of blocks from said upper-level apparatus; and
~~processing means for processing~~ processor that processes said received block and storing into said ~~storage means~~ memory after the reception,

wherein said ~~processing means~~ processor judges a guarantee range of the installed blocks using a data stored in said ~~storage means~~ memory when resuming said installation after an interruption of said installation, and informs said upper-level apparatus of said guarantee range, and wherein

said upper-level apparatus restarts to install said firmware from the succeeding transfer block of said guarantee range.

Claim 15 (Currently Amended): The printer system according to claim 14, wherein said upper-level apparatus sends firmware management information and said each block of the firmware entity to said printer; and

said printer judges said guarantee range of said installed blocks using said received firmware management information and data stored in said ~~storage means~~ memory.

Claim 16 (Currently Amended): The printer system according to claim 15, wherein said upper-level apparatus sends said firmware management information; and then sends said each block of the firmware entity; and

said printer judges said guarantee range of said installed blocks using said received firmware management information and data stored in said ~~storage means~~ memory.

Claim 17 (Currently Amended): The printer system according to claim 15, wherein said upper-level apparatus sends blocks each consisting of said firmware management information on each firmware block and the firmware entity; and

said printer judges said guarantee range of said installed blocks using said firmware management information extracted from said received block and data stored in said ~~storage~~ means memory.

Claim 18 (original): The printer system according to claim 14, wherein said upper-level apparatus interrupts said installation according to an interruption signal received from said printer; and resumes said installation according to a resumption signal received from said printer.

Claim 19 (original): The printer system according to claim 18, wherein said printer starts to print said print data when detecting to receive print data; and informs said upper-level apparatus of said interruption signal.

Claim 20 (original): The printer system according to claim 18, wherein said printer performs a processing corresponding to a printer operation in response with said printer operation; and informs said upper-level apparatus of said interruption signal.